

JAPAN

EDICT OF GOVERNMENT

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JIS Z 2150 (1966) (English): Method of flame test
for materials

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*The citizens of a nation must
honor the laws of the land.*

Fukuzawa Yukichi

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JAPANESE INDUSTRIAL STANDARD

Method of Flame Test for Thin Materials
(45° Mèker Burner Method)

JIS Z 2150 - 1966

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JAPANESE INDUSTRIAL STANDARD

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Method of Flame Test for Thin Materials
(45° Meker Burner Method)Z 2150-1966
(Reaffirmed: 1994)1. General

1.1 Scope This standard specifies the flame test procedure by 45° Meker burner method for such flat materials less than 5 mm thick as board, plate, sheet, film, thick cloth and so on. However, this test procedure shall not be applied to the effective evaluation of the non-inflammability of thin materials which are short of non-inflammability Class 3 under 2.1.

1.2 For the flame test, the test body as specified under 3 shall be used and it shall be heated in accordance with the procedure described under 5 using the heating tester described under 4.

1.3 When the quality of material differs from top to bottom, the test shall be made of both sides.

1.4 When the quality varies for different portions of material, every portion shall be tested.

1.5 When the material possesses directional characteristics, the test shall be performed in each direction.

2. Classes of Non-inflammability

2.1 Non-inflammability shall be classified as in Table 1.

Table 1

Non-inflammability	Carbonized length	Residual flame	Ember
Class 1	less than 5 cm	none ⁽¹⁾	none after 1 min.
Class 2	less than 10 cm	lasts less than 5 sec.	none after 1 min.
Class 3	less than 15 cm	lasts less than 5 sec.	none after 1 min.

Note ⁽¹⁾ Approximately less than 1 sec.

3. Test Body

3.1 The test body shall be about 30 x 20 cm, its thickness being the same as in its finished product.

3.2 Pretreatment of Test Body Pretreatment shall be made by either of the following two procedures:

- (1) Method A A test body in atmospheric dryness shall be dried at 50 ± 2 °C for 48 hours, then left for 24 hours in a desiccator containing silica gel. After that the heating test shall be carried out.
- (2) Method B After immersed for 30 minutes in a 50 °C hot water bath weighing over 20 times the weight of test body, the test body is dried at 50 ± 2 °C for 48 hours. Then it is put into a desiccator containing silica gel and left there for 24 hours, after which it is submitted to the heating test.

4. Heating Test Device

- 4.1 Heating test shall be performed within a vessel using the device shown in the Figure.
- 4.2 For heating purpose, a Meker burner 160 mm high and 20 mm in inside diameter shall be used, with only the gas fed without any mixture of primary air.
- 4.3 The fuel for heating test shall be the liquefied petroleum gas No. 5 (mainly composed of butane and butylene) conforming to JIS K 2240-Liquefied Petroleum LP (Gas).
- 4.4 The test body, held tightly in a support frame as shown in the Figure, shall be fitted on the heating tester.

5. Heating Test

- 5.1 The burner shall be set at the specified position in the heating test as shown in the Figure, and shall be so adjusted that the flame may extend 65 mm long in the state without the support frame.
- 5.2 The burner shall be ignited by an induction coil and when the heating is over, the fuel cock shall be shut.
- 5.3 Heating time shall be varied as 10 sec., 20 sec., 30 sec., 1 min., 2 min., and 3 min.
- 5.4 The items to be measured shall be carbonized length, residual flame and ember. Moreover, the state of combustion during the test shall be recorded.
- 5.5 Residual flame shall be measuring the duration from combustion of heating until the test body ceases to burn with a flame.
- 5.6 Ember shall be the condition in which the test body continues to burn without a flame after finishing the heating. This shall be observed in one minute after finishing the heating. When the material does not permit observation of the inside burning without a flame from the surface, after one minute of conclusion of heating it shall be notched at about 1 cm intervals by a knife for the convenience of observation.
- 5.7 Carbonized length shall be measured in terms of the maximum carbonized area⁽²⁾ on the heated surface of test body in the longitudinal direction of support frame.
- Note (2) The area which has been carbonized with definitely diminished strength.
- 5.8 For evaluation of test results, the maximum values of carbonized length, residual flame and ember in the test body shall be adopted.
- 5.9 As for the evaluation of the case when a flaming molten substance drops in the course of heating, it shall be separately evaluated.

6. Test Frequency

The test shall be repeated three times ⁽³⁾ for each heating time.

Note ⁽³⁾ When the test material is such as mentioned in 1.3 to 1.5, the test shall be repeated three times for each different condition.

7. Indication of Results

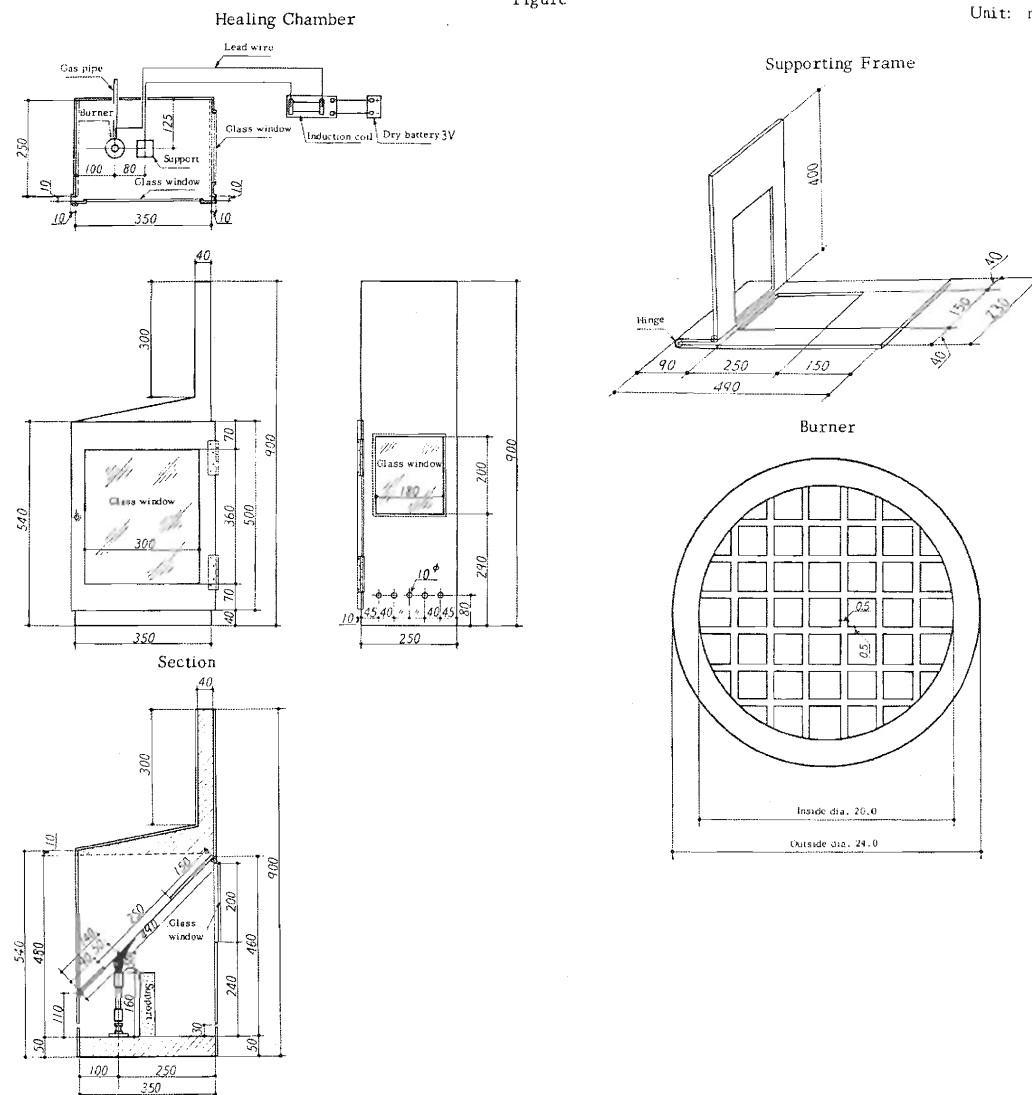
As test results, the following matters shall be stated:

- (1) Material and its thickness
- (2) Class of non-inflammability, pretreatment of test body and heating time
- (3) Carbonized length, residual flame, ember and other major observations related to non-inflammability
- (4) Test date, test organ and test personnel

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Figure

Unit: mm



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